

Sociodemographic factors associated with mortality of women in fertile age in Rio Grande do Norte

Lima, Iraci Duarte de; França, Thaís Lorena Barbosa de; Silva, Juliano José; Silva, Kamila Maiane Pessoa da

Veröffentlichungsversion / Published Version
Zeitschriftenartikel / journal article

Empfohlene Zitierung / Suggested Citation:

Lima, I. D. d., França, T. L. B. d., Silva, J. J., & Silva, K. M. P. d. (2014). Sociodemographic factors associated with mortality of women in fertile age in Rio Grande do Norte. *Revista de Pesquisa: Cuidado é Fundamental Online*, 6(4), 1464-1474. <https://doi.org/10.9789/2175-5361.2014.v6i4.1464-1474>

Nutzungsbedingungen:

Dieser Text wird unter einer CC BY-NC Lizenz (Namensnennung-Nicht-kommerziell) zur Verfügung gestellt. Nähere Auskünfte zu den CC-Lizenzen finden Sie hier:
<https://creativecommons.org/licenses/by-nc/4.0/deed.de>

Terms of use:

This document is made available under a CC BY-NC Licence (Attribution-NonCommercial). For more Information see:
<https://creativecommons.org/licenses/by-nc/4.0>

Federal University of Rio de Janeiro State



Journal of Research Fundamental Care Online

ISSN 2175-5361
DOI: 10.9789/2175-5361

PESQUISA

Fatores sociodemográficos associados com a mortalidade de mulheres em idade fértil no Rio Grande do Norte

Sociodemographic factors associated with mortality of women in fertile age in Rio Grande do Norte

Factores sociodemográficos asociados con la mortalidad de mujeres en edad fértil en Río Grande do Norte

Iraci Duarte de Lima ¹, Thaís Lorena Barbosa de França ², Juliano José Silva ³, Kamila Maiane Pessoa da Silva ⁴

ABSTRACT

Objective: Identifying sociodemographic factors associated with mortality of women in fertile age in Rio Grande do Norte in the period from 2006 to 2010. **Method:** a descriptive, quantitative study with collected data through the Mortality Information System and processed by the test of association chi-square. **Results:** 59.1% of the deaths occurred from preventable causes and the main underlying causes: cancer, heart disease and circulatory system and external causes. Deaths grow proportionally with age and were associated with: educational attainment, occupation and origin of the institution of occurrence. **Conclusion:** the results indicate weaknesses in the quality of care and point to the need of investing in actions that reduce inequality in access to primary care services that ensure quality and resolution at all levels of health care. **Descriptors:** Mortality, Women's health, Cause of death, Public health.

RESUMO

Objetivo: Identificar os fatores sociodemográficos associados com a mortalidade de mulheres em idade fértil do Rio Grande do Norte no período de 2006 a 2010. **Método:** Estudo descritivo, quantitativo com dados coletados através do Sistema de Informação de Mortalidade e processados pelo teste de associação qui-quadrado. **Resultados:** 59,1% dos óbitos ocorreram por causas evitáveis sendo as principais causas básicas: neoplasias, doenças cardíacas e do aparelho circulatório e causas externas. Os óbitos crescem proporcionalmente com a faixa etária e foram associados com anos de estudo, ocupação e origem da instituição de ocorrência. **Conclusão:** os resultados indicam fragilidades na qualidade da assistência oferecida e apontam para a necessidade de investimentos em ações que reduzam a desigualdade no acesso aos serviços de atendimento básico garantindo qualidade e resolutividade em todos os níveis de atenção a saúde. **Descritores:** Mortalidade, Saúde da mulher, Causas de morte, Saúde pública.

RESUMEN

Objetivo: Identificar los factores sociodemográficos asociados con la mortalidad de mujeres de edad fértil de Río Grande do Norte en el periodo 2006 hasta 2010. **Método:** estudio descriptivo, cuantitativo con datos colectados por el Sistema de Información de mortalidad y procesados de pruebas de asociación por qui-cuadrado. **Resultados:** 59,1% de las muertes ocurrieron en situaciones evitables y las principales causas básicas eran neoplasias, enfermedades cardíacas y de aparato circulatorio y causas externas. Las muertes aumentaron proporcionalmente con el grupo de edad y fueron asociadas con: años de estudio, ocupación y origen de la institución de ocurrencia. **Conclusión:** los resultados indican debilidad en la cualidad de la asistencia ofrecida a la población estudiada e indican la necesidad de investimentos en acciones que reduzcan la desigualdad en el acceso a los servicios de atendimento básico que aseguren la cualidad y los resultados en todos los niveles de atención a la salud. **Descriptor:** Mortalidad, Salud de la mujer, Causas de muerte, Salud pública.

¹Biologist, Doctoral Student of the Postgraduate program in Health Sciences, Federal University of Rio Grande do Norte. Master of Health Sciences from the Federal University of Rio Grande do Norte. Email: iraci.duarte@ig.com.br. ²Nurse, graduated from the Federal University of Rio Grande do Norte, Natal, Rio Grande do Norte, Brazil. Lato sensu Specialist in Occupational Health Nursing and Clinical Nursing. Email: thais-lorena@hotmail.com. ³Physician, graduated from the Federal University of Rio Grande do Norte, Natal, Rio Grande do Norte, Brazil. E-mail: jjsmed2009@gmail.com. ⁴Nurse graduated from the Federal University of Rio Grande do Norte, Natal, Rio Grande do Norte, Brazil. Email: kamilamaiane@hotmail.com.

INTRODUCTION

Maternal mortality is one of the most serious violations of human rights of women to be avoidable in 92% of cases and occurs mainly in developing countries. In Brazil, the reduction of maternal mortality is configured as a serious public health problem and it is a challenge for health services and society as a whole.¹

Besides being an indicator of health, maternal mortality also reveals the human and socioeconomic development of a country and consequently determines policies and actions of health.² It is considered a sentinel event, in that it constitutes one of the methods for surveillance health, it is also an indicator of the quality of health services.³

Maternal mortality can be measured by the ratio of Maternal Mortality; however, there is a specific coefficient to measure the mortality of Women in Reproductive Age (MIF), as well as the range of childbearing age is not properly conceptualized. Biologically, it is known that this period corresponds to the time interval between menarche and menopause. Since one cannot exclude teenage pregnancy, it is recommended that studies involving MIF include the ages of 10 to 49 years old.⁴ Thus, studies on mortality in the reproductive period are of great importance, since in this period are summed common risk factors to all age groups and factors related to pregnancy, childbirth and puerperium.⁵

Another aspect of mortality that needs further development is the concept of preventable death. In general, this concept is related to socioeconomic status and quality of care provided by health services, considering the new knowledge and technologies that can be employed to avoid death.⁶⁻⁷

In literature can be found different lists proposed of causes of preventable deaths for different age groups, but there are common characteristics of criteria of death preventability, which can be arranged in four categories: preventable deaths by preventive measures; preventable deaths through early diagnosis and treatment; preventable by measures of sanitation and preventable deaths by applying a set of measures, different levels of social and health care deaths.⁷ However, the weaknesses of the database from the Mortality Information System (SIM) hinder real knowledge of both maternal mortality and the mortality of MIF due to sub-information the causes of death and underreporting on death certificates (DO).¹⁻²

Therefore, the Ministry of Health adopted a series of measures through the National Pact for the Reduction of Maternal and Neonatal Mortality, in order to improving the quality of health care of women and the registration of maternal deaths, which emphasize how fundamental strategy surveillance of maternal deaths across the investigation of the deaths of MIF.¹

Considering the importance of this issue and the limited number of national surveys addressing MIF mortality, this study aims to identify the sociodemographic factors

associated with mortality of MIF of Rio Grande do Norte in the period 2006-2010, taking into account the causes and preventability of deaths.

METHOD

There was conducted a descriptive study of historical series type with a quantitative approach. There were analyzed 4199 death records of women in the age group 10-49 years old, living in different municipalities of the State of Rio Grande do Norte in the period from January 1st, 2006 to December 31st, 2010. The data were collected through Mortality Information system (SIM), the State Department of Public Health of Rio Grande do Norte/SESAP being analyzed only the variables of interest.

The dependent variable was the occurrence of deaths of MIF and the independent variables were the sociodemographic aspect: age (10-19, 20-29, 30-39 and 40-49 years old), race/color (white, black or brown and yellow), marital status (single, married, widowed, separated), years of education (none, 1-3, 4-7, 8-11, 12 and more years of education), occupation (housewife, student, maid, agriculture worker, retired/ pensioners and others) and municipality of residence. The information recorded as ignored was excluded from the study analysis.

Regarding the conditions of mortality deaths of MIF, the following independent variables were analyzed: death occurred institution (public or private institution), medical assistance during the death process (or not received), underlying cause of death (if avoidable or unavoidable). To undetermined causes, the International Classification of Diseases (ICD - 10) and was used to classify the preventability of death, the list of causes of preventable deaths by intervention of the Unified Health System (SUS) was used.⁶

To calculate the mortality rate of MIF in the period, it was considered the total deaths and the population of MIF in each year studied. Thus, the coefficient of the period was established as the arithmetic mean of the annual coefficients.

All variables of interest were categorized and entered into a database for processing and statistical analyzes performed using SPSS (Statistical Package for Social Sciences), version 17.0, able to read and write files in .sav format. The chi-square test was used to assess associations between the dependent and independent variables with significance level <0,05.

This study is a product of the Education Program at Work for Health - Health Surveillance (PET/VS), which presupposes the teaching-service integration and community-education through labor through reorientation of professional training and strengthening of primary health care. This tutorial group consists of faculty tutors, Federal University of Rio Grande do Norte, by the preceptors SESAP and Municipal Health Department of the Municipality of Christmas and for students in the area of health UFRN.

Ethical considerations

Data were collected secondarily through the SIM database. The worksheets have been provided by this bank SESAP excluding the identity of individuals. The information was treated strictly confidentially, respecting the principles of beneficence and non-maleficence of scientific production, according to ethical principles of Resolution 196/96 of the National Council on Ethics in Research (CONEP).

RESULTS E DISCUSSION

The average population of MIF in Rio Grande do Norte, in the period 2006-2010, considering the annual population of MIF Department of the SUS (DATASUL) was 1.015.981.⁸ Of the 167 municipalities in the state, 141 recorded deaths MIF totaling 4.199 records during the study period, with a mortality rate of 82,644/100 000 MIF. Municipalities Christmas, Mossley and Melbourn presented the highest frequency of deaths, given that concentrate most of the state's population (40%) and provide greater supply of health services.

The study showed that the three causes of deaths of MIF frequently, in descending order, were: cancer (23%), heart disease and circulatory system (11,2%), followed by external causes (5,6%). It is noteworthy that the deaths caused by cancer, 46.5% were breast type.

The distribution of deaths over the years did not undergo major changes. However, a considerable vertical distance of preventable deaths in relation to non-preventable (Figure 1) was observed.

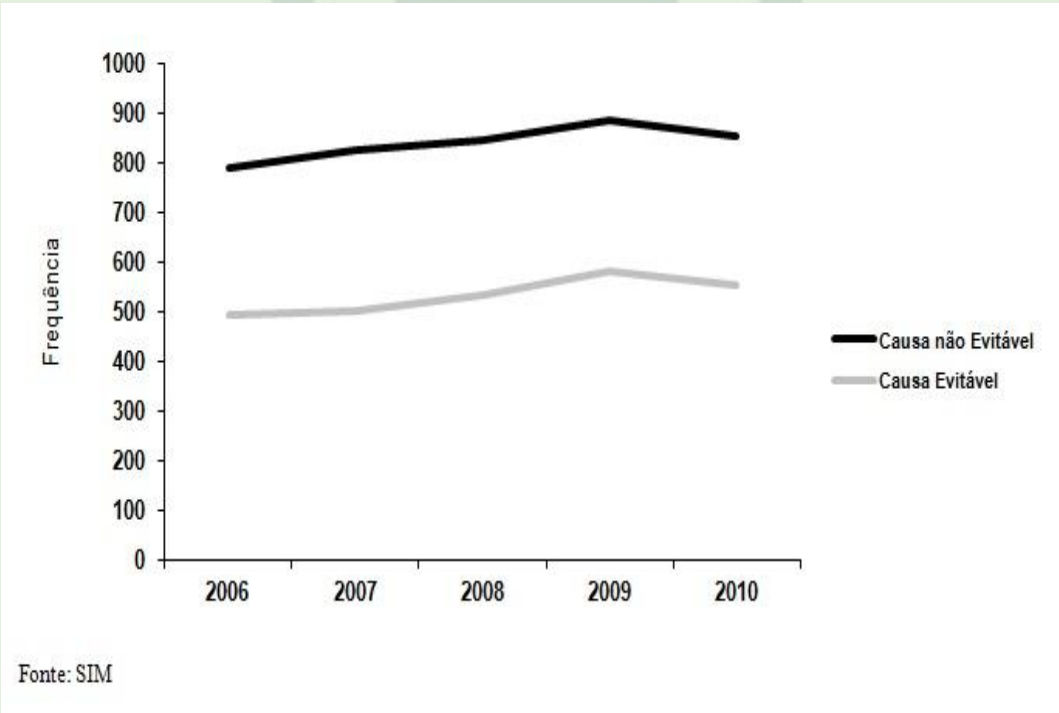


Figure 1-distribution of MIF's death in Rio Grande do Norte, in the period from 2006 to 2010, according to it could have been prevented.

Figure 2 shows that both deaths as preventable causes of the preventable causes not increased proportionally according to age group. Although the highest percentage of deaths

are in the age group 40-49 years old (45,1%), at the intersection between age and cause of death are preventable or not preventable, the study showed no significant association $p = 0,99$.

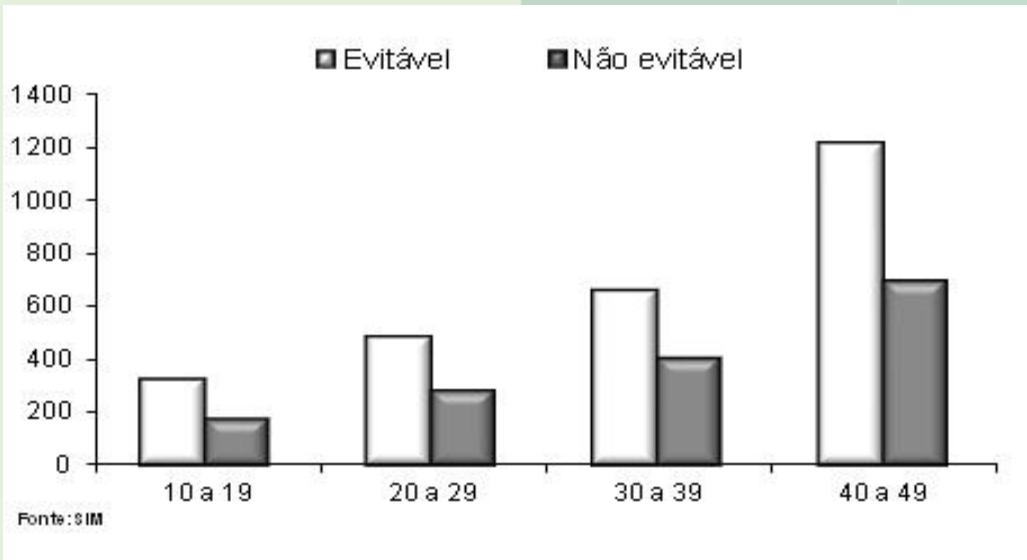


Figure 2-the MIF's death could have been prevented and its association with age, RN, 2006 to 2010.

With regard to education, the analysis showed a significant association ($p = 0,03$) between the MIF deaths and years of study; with most of these, as both preventable cause because not preventable, occurred in women who had up to seven years of study, as shown in figure 3.

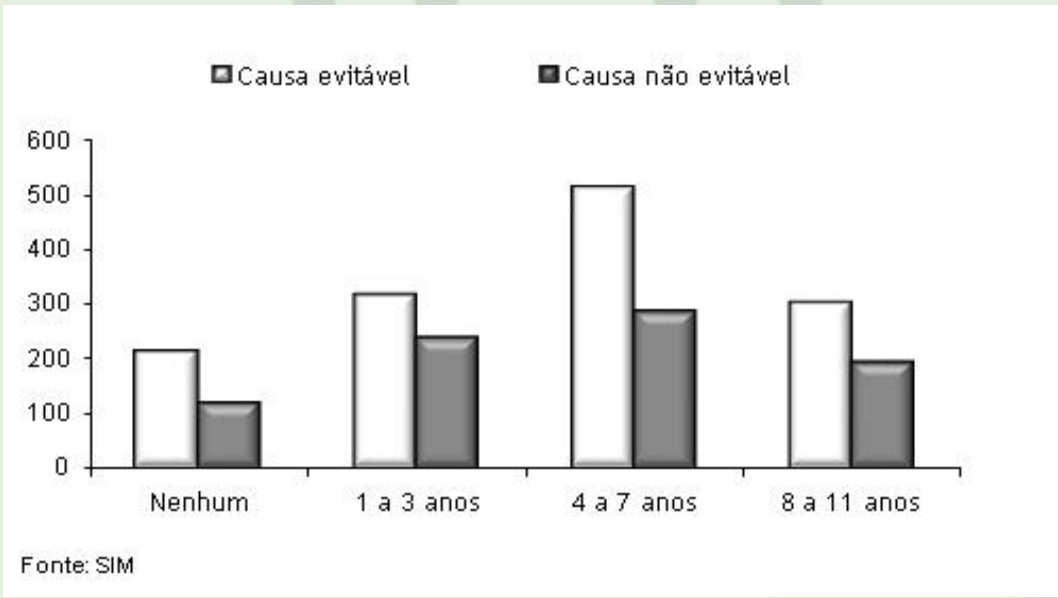


Figure 3-MIF's death could have been prevented and their association with the years of study, RN 2006 to 2010.

Table 1 shows a significant association between cause of death and the following variables: occupation ($p = 0,00$) and the origin of the establishment of occurrence of deaths ($p = 0,00$). It was observed that with regard to occupation, the higher frequency of mortality occurred among housewives, followed by agriculture professionals and students. Variables: race and marital status were not associated with the cause of death.

With regard to race, despite a higher percentage of deaths occurred in women of black color (45,4%) no statistically significant association was observed as shown in Table 1.

Table 1: Sociodemographic aspects and their associations with the MIF, RN, 2006 to 2010.

Variables	n (%)	p	
Race			
White	1.317 (40,7)	0,072	
Black	1.906 (45,4)		
Dark	7 (0,2)		
Yellow	3 (0,1)		
Occupation			
Housewife	1.282 (50,7)	0,00	
Student	268 (10,6)		
Free Lancer	205 (8,1)		
Professional of agriculture	419 (16,6)		
Retired / pensioner	167 (6,6)		
Civil servant	53 (2,1)		
Private initiative	120 (4,7)		
Unemployed	13 (0,5)		
Origin of the establishment of death			
Public	2368 (80,4)	0,00	
Private	579 (19,6)		
Marital status			
Single	2.389 (61,1)	0,97	
Married	1.261 (32,2)		
A Widower / widow	104 (2,7)		
Divorced	157 (4,0)		

Source: SIM

Figure 4 shows the origin of the establishment of the cases analyzed. The study showed a significant association ($p = 0,00$) between the deaths and the place of occurrence. The analysis revealed that 80,4% of deaths of MIF occurred in public institutions and 59,1% were avoidable.

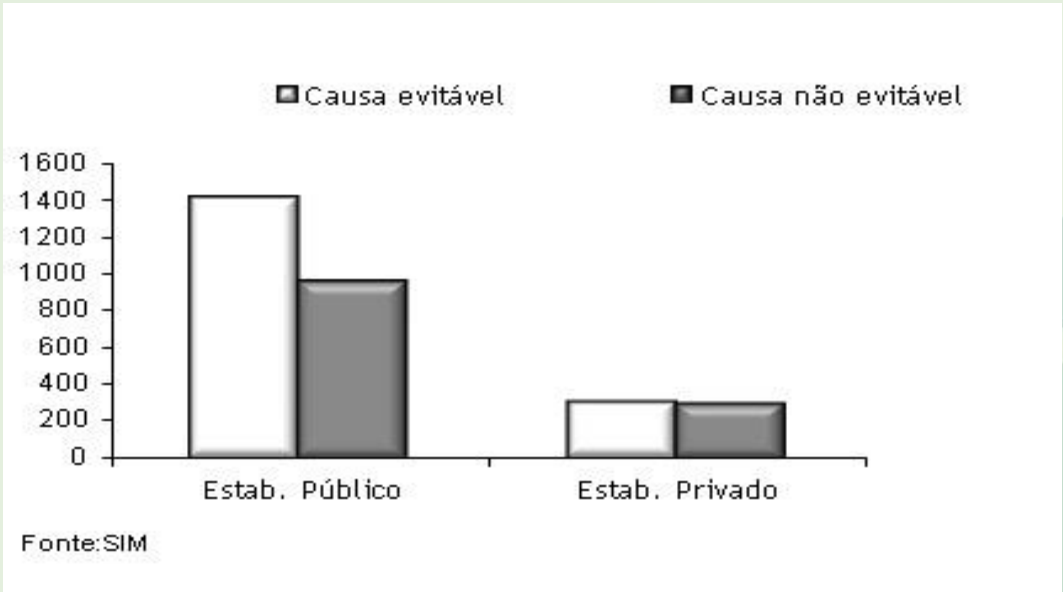


Figure 4 - Avoidability of death according to the origin of the establishment of occurrence, RN 2006 to 2010.

It was found that the total records, 47,7% of women received care during death. However, one must consider that the study did not examine whether the study population received some kind of assistance during the disease process that triggered death.

For the three causes of death MIF frequently identified in our study, we observed that the same distribution was also identified in a study conducted in Recife/PE.⁹ In a study conducted in Campinas/SP was the main difference relating to the ranking classification of causes of death, most frequent being cardiac and circulatory diseases, followed by cancer and external causes.⁴

It should be noted that the studies cited did not analyze the deaths as avoidable.

The evaluation of the CPI report of maternal mortality in Brazil¹⁴ shows an intrinsic relationship of maternal mortality with the mortality of MIF and that over 90% of maternal deaths can be avoided through perfectly dignified treatment, which enhances the condition of women's citizenship.¹⁰

In a study conducted in Cascavel/PR was identified as the leading cause of death of MIF, external causes, followed by heart disease and circulatory system and neoplasms.¹¹ It is possible that the different scenarios deaths of MIF in the Northeast, Southeast and south of the country are related to the cultural, socioeconomic and quality of health services offered to the population characteristics.

Whereas in recent decades deaths from cardiovascular disease, cancer, accidents and violence, called diseases of industrialization, have dominated the profile of adult mortality in developed countries, Brazil is moving in the same perspective, considering the time of socioeconomic transition country.⁴

The high number of deaths from cancer in our study pointed out as the leading cause of deaths of MIF is an unusual fact since other studies conducted in Brazil indicate neoplasm as the second cause of death.⁹

One must consider that despite the existence of a specific network for early detection of breast cancer and screening for cervical cancer deployed by the Ministry of Health in 2006¹²⁻¹³, the statistics presented in this study also challenge the impact of implemented strategies.

Another aspect that may contribute to the high number of deaths from breast cancer is the autoprreconceito women in relation to cancer. In routine health services can be seen that for cultural reasons, many women that detect changes in breast morphology keep this as a secret, for fear the opinions of others or the possible loss of the companion, especially when it is necessary to removal of the breast. In this sense, the profile and the sensitivity of the primary care professional are very important in breaking down those stigmas.

As the mortality rate of MIF pointed in the study, should be considered that could be higher, if we took into account the representation of sub-records. Proportionally higher values were found in the analysis of 10 years performed in Cascavel/PR and Campinas/SP, which had coefficients of 116,6/100 000 and 113/100 respectively MIF.^{4, 11} The difference in coefficients can be attributed to the types exposure of diseases that women are likely and the quality of the records of deaths in those states.

Considering only the number of deaths by age group, our results are corroborated by a study of mortality of MIF in the city of Campinas/SP and maternal mortality study

conducted in Rio de Janeiro/RJ.^{4,14} However, no national studies have identified that differentiate the mortality of MIF by age group, taking into account the preventability of death.

Considering the percentage of deaths in women aged up to seven years of study, shown in this study, we believe that our findings go in the same perspective of the CPI report maternal mortality in Brazil that says that even with the reduction of illiteracy and increasing average schooling in Brazil, poor schooling reflected in maternal mortality.¹⁰ This analysis brings us a reflection of the relationship between low education and the difficulty of access to the means of disease prevention, impacting the mortality rate from preventable causes, the population of women the economically active stage of life.

Regarding the occupation of higher frequency, our findings can be compared with the study of maternal mortality in Porto Alegre, which showed higher frequency of maternal deaths in women who had occupation as housewives. In the study cited, the groups with the second and third highest frequency of maternal deaths were: domestic and teachers.²

Importantly, the report said the CPI of maternal mortality in Brazil¹⁰, occupation housewife is often devalued by not being in paid work, however, it is a constant, uninterrupted and exhausting activity that demands effort physical and on general health and disease status of women. One must consider that even worked informally on manual activities such as sewing, embroidery, crochet, crafts, among others, many women consider themselves only as a housewife.

Relating the leading cause of deaths of MIF and the occupation with the highest percentage of deaths shown in our study, we infer that many women do not have access to knowledge and information that encourage seeking assistance for cancer prevention. When there is this initiative, are faced with an extremely bureaucratized system, where a delay in an appointment or specific examinations discourages the search for early diagnosis and therefore the treatment that could prevent death. In this respect, we observe that prevails in routine health services negligent and inadequate care.

The studies of Haddad and Silva show that one of the features of social change is the increasing participation of women in the productive process, with its decisive contribution to the economic and social development of the country. Consequently, the growing independence of women and their greater participation in the market work, associated practices, habits and behaviors acquired, which were more frequent in the male population, such as smoking and drinking and greater sexual freedom left women more vulnerable to stress and other risks associated with chronic diseases and accidents.⁵ This context strengthens the main causes of death identified in our study.

Thus, we noticed that the health system is not suitable social changes that altered the profile of women entering the labor market and the new reality of women's role in society needs a new look with regards mainly to the time services that are offered and agility in solving of prevention. Analyzing the second and third highest frequency of deaths in MIF identified in our study between agriculture professionals and students show that the occupation reflects the behavior and health of women and strengthens the need for readjustment services in prevention and assistance women's health.

Regarding race, our study showed no significant association, but the highest percentage of deaths of MIF (45,4%) occurred among black women. However study

examining maternal mortality in Porto Alegre, found the highest percentage of deaths (61,5%) in white women. However one must consider the process of colonization of each region studied and the fact of vagueness to trace the color that has the highest risk of death, due to the intense Brazilian miscegenation.² According to the report from the Brazilian Institute of Geography and Statistics (IBGE), the brown color predominates in the state of Rio Grande do Norte population.¹⁵

Our findings go in the same perspective Martins that in his review of maternal mortality, says that the risk of maternal death is higher among black women, including in this group of black and brown color, setting up a major expression of social inequality.¹⁶

Regarding the origin of the occurrence of deaths analyzed and the fact that most have occurred in public institutions, we understand that much of the population is assisted by this network and the high cost to the prevention and treatment of chronic diseases are not attractive to investment of private health network.

Study in southeastern Brazil also showed higher frequency of deaths of MIF in public facility and found that the largest portion of these occurred due to preventable causes, reflecting the need for ensuring full attention to women's health.⁷ Thus, the access and the quality of health care are factors that directly influence maternal mortality and, consequently, the mortality of MIF.³

Must consider that the cost diagnosis, treatment and monitoring of patients with cancer are very high, so patients from the private network to migrate treatment in the public health service. In this sense, public health managers need to review the priorities and the way of implementation of the health funds, consistent and ethical manner in order to enhance the role of primary health care and invest in prevention activities aimed at reduce demand and expenditures for assistance. Thus, the quality of care should be prioritized in the health system to reduce mortality from preventable causes.

CONCLUSION

Mortality of MIF in Rio Grande do Norte occurs mostly from preventable causes and is associated with low education with occupation, with the origin of the establishment of occurrence of death, with age and with the fact of having received care at of death. These aspects indicate serious weaknesses in the quality of care provided to the population, but also reveal a need to invest in actions to reduce inequality in women's access to primary care services and actions in health promotion, disease prevention and injuries and to ensure quality and resolution at all levels of care.

REFERENCES

1. Brasil. Ministério da Saúde. Secretaria de Vigilância em Saúde. Departamento de Análise de Situação de Saúde. Coordenação Geral de Informação e Análise Epidemiológica. Guia de Vigilância Epidemiológica do Óbito Materno. Brasília; 2009.
2. Riquinho DL, Correia SG. Mortalidade materna: perfil sócio-demográfico e causal. Rev Bras Enferm [periódico na Internet]. 2006 maio/jun [Acesso em 2013 Fev 12]; 59(3):303-7. Disponível em: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S003471672006000300010.
3. Figueiredo YMD, Malta DC, Rezende EM. Análise da Mortalidade Materna no Município de Governador Valadares, 2002-2004. Rev Min Enferm [periódico na Internet], 2010 jul/set [Acesso em 2013 Fev 12]; 14(3): 376-85. Disponível em: <http://www.reme.org.br/artigo/detalhes/129>.
4. Faúndes A, Parpinelli MA, Cecatti JG. Mortalidade de mulheres em idade fértil em Campinas, São Paulo (1985-1994). Cad Saude Publica [periódico na Internet]. 2000 jul/set [Acesso em 2013 Fev 12];16(3): 671-9. Disponível em: http://www.scielo.br/scielo.php?pid=S0102311X2000000300015&script=sci_arttext.
5. Haddad N, Silva MB. Mortalidade feminina em idade reprodutiva no Estado de São Paulo, Brasil, 1991-1995: causas básicas de óbito e mortalidade materna. Rev Saude Publica [periódico na Internet]. 2000; [Acesso em 2013 Abr 16]; 34(1): 64-70. Disponível em: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-89102000000100012.
6. Malta DC, Duarte EC, Almeida MF, Dias MAS, Moraes Neto OL, Moura L, Ferraz W, Souza MFM. Lista de Causas de Mortes Evitáveis por Intervenções do Sistema Único de Saúde do Brasil. Epidemiol Serv Saúde [periódico na Internet]. 2007 out/dez [Acesso em 2013 Abr 24]; 16(4): 233-44. Disponível em: http://scielo.iec.pa.gov.br/scielo.php?pid=S167949742007000400002&script=sci_arttext.
7. Parpinelli MA, Faúndes A, Cecatti JG, Pereira BG, Passini Junior R, Amaral E. Análise da Mortalidade Evitável de Mulheres em Idade Reprodutiva. Rev Bras Ginecol Obstet [periódico na Internet] 2000; [Acesso em 2013 Maio 20]. 22(9): 579-84. Disponível em: <http://www.scielo.br/pdf/rbgo/v22n9/12056.pdf>.
8. DATASUS. Ministério da Saúde. Departamento de informática do SUS. Disponível em: <<http://datasus.gov.br>>. Acesso em: 9 Jan. 2013.
9. Albuquerque RM, Cecatti JG, Hardy EE, Faúndes A. Causas e fatores associados a mortalidade de mulheres em idade reprodutiva em Recife, Brasil. Cad Saude Publica [periódico na Internet]; 1998 [Acesso em 2013 Maio 24]14 supl.1: 41-8. Disponível em: <http://www.scielo.org/pdf/csp/v14s1/1339.pdf>
10. Barbalho, Elcione. Relatório da CPI da mortalidade materna. Brasília: Câmara dos Deputados, 2001.

11. Cardoso MP, Faúndes A. Mortalidade de mulheres em idade fértil devido a causas externas no município de Cascavel, Paraná, Brasil, 1991 a 2000. *Cad Saude Publica* [periódico na Internet]. 2006 out [Acesso em 2013 Fev 12]; 22(10): 2244-48. Disponível em: <http://www.scielo.br/pdf/csp/v22n10/23.pdf>
12. Brasil, Ministério da Saúde. Parâmetros técnicos para programação de ações de detecção precoce do câncer de mama. Rio de Janeiro, 2006.
13. Instituto Nacional do Câncer, Ministério da Saúde. Diretrizes Brasileiras para o Rastreamento do Câncer do Colo do Útero. Rio de Janeiro, 2011.
14. Ribeiro CM, Costa AJL, Cascão AM, Lobato JCP, Cavalcanti MLT, Kale PL. Mortalidade de mulheres em idade fértil no Rio de Janeiro: Aprimorando estratégias de recuperação das informações sobre mortalidade materna. In: XVII Encontro Nacional de Estudos Populacionais. Caxambu - MG set 2010.
15. Instituto Brasileiro de Geografia e Estatística. Estudos sociodemográficos e análises espaciais referentes aos municípios com a existência de comunidades remanescentes de quilombos. Relatório Técnico Preliminar. Rio de Janeiro, 2007.
16. Martins, AL. Mortalidade materna de mulheres negras no Brasil. *Cad Saude Publica* [periódico na Internet]. 2006 nov [Acesso em 2013 Jun 3]; 22(11): 2473-79. Disponível em: <http://www.scielosp.org/pdf/csp/v22n11/22.pdf>

Received on: 26/12/2013
Required for review: No
Approved on: 31/07/2014
Published on: 01/10/2014

Contact of the corresponding author:
Iraci Duarte de Lima
Rua Gameleira, 13. Nova Parnamirim. Parnamirim,
Rio Grande do Norte, Brasil. CEP: 59152080.